

Institute for Multiscale Materials Studies

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Microlattice Materials formed from self-propagating Photopolymer Waveguides

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TA-3, Bldg. 4200, Suite 101, Access Grid Conference Room

ABSTRACT: The HRL Microlattice Technology represents a foundational materials platform that enables the ability to precisely control the micro-architecture of lattice-based materials, ultimately enabling the design of a material to achieve a particular property or function. By designing at the materials level, new bulk material properties can be achieved. The process to fabricate microlattice materials is based on an interconnected array of self-propagating photopolymer waveguides. This new approach combines aspects of traditional lithography, rapid prototyping, and printing. The combination of rapid fabrication, planar scalability, and different end-material options opens up a broad application space within the automotive, aerospace and defense industries, as well as other commercial sectors. In this talk, Dr. Jacobsen will give a brief overview on the current state of development and highlight some of our on-going research efforts.

BIO: Dr. Alan J. Jacobsen is a Senior Scientist in the Architected Materials Department at HRL Laboratories, LLC. He received his B.S. in Mechanical Engineering from New Mexico State University, M.S. in Mechanical Engineering from Northwestern University, and Ph.D. in Mechanical Engineering from University of Southern California. Dr. Jacobsen has pioneered a new process to rapidly fabricate microlattice structures from self-propagating photopolymer waveguides. He holds 13 patents, has over 30 patents pending, and has authored/co-authored 13 publications.